

METHOD AND APPARATUS FOR ORDERING GOODS AND SERVICES OVER AN INTERNETWORK

Field of the Invention

This invention generally relates to a method and apparatus for allowing a
5 consumer to order goods and services from one or more other computers connected
via common communication links and, more specifically, a method and apparatus for
allowing a consumer to order goods and services from computers connected to the
Internet, wherein the consumer is automatically billed for the ordered good or service
by its telephone service provider.

Background of the Invention

10 Communication networks are well known in the computer communications
field. By definition, a network is a group of computers and associated devices that
are connected by communications facilities or links. Network communications can
be of a permanent nature, such as via cables, or can be of a temporary nature, such as
15 connections made through telephone or radio links. Networks may vary in size, from
a local area network (LAN) consisting of a few computers or workstations and
related devices; to a wide area network (WAN) which interconnects computers and
LANs that are geographically dispersed; to a remote access service (RAS) which
interconnects remote computers via temporary communication links. An
20 internetwork, in turn, is the joining of multiple computer networks, both similar and
dissimilar, by means of gateways or routers that facilitate data transfer and

conversion from various networks. A well-known abbreviation for the term internetwork is "internet." As currently understood, the capitalized term "Internet" refers to the collection of networks and routers that use the Transmission Control Protocol/Internet Protocol (TCP/IP) to communicate with one another.

5 A representative section of the Internet 20 is shown in FIGURE 1 (Prior Art) in which a plurality of local area networks (LANs) 24 and a wide area network (WAN) 26 are interconnected by routers 22. The routers 22 are generally special purpose computers used to interface one LAN or WAN to another. Communication links within the LANs may be twisted wire pair, or coaxial cable, while
10 communication links between networks may utilize 56 Kbps analog telephone lines, or 1 Mbps digital T-1 lines and/or 45 Mbps T-3 lines. Further, computers and other related electronic devices can be remotely connected to either the LANs 24 or the WAN 26 via a modem and temporary telephone link. Such computers and electronic devices 28 are shown in FIGURE 1 as connected to one of the LANs 24 via a dotted
15 line. It will be appreciated that the Internet comprises a vast number of such interconnected networks, computers, and routers and that only a small, representative section of the Internet 20 is shown in FIGURE 1.

The Internet has recently seen explosive growth by virtue of its ability to link computers located throughout the world. As the Internet has grown, so has the World
20 Wide Web (WWW). The WWW is a vast collection of interconnected or "hypertext" documents written in HyperText Markup Language (HTML) that are electronically stored at "web sites" throughout the Internet. A web site is a server connected to the Internet that has mass storage facilities for storing hypertext documents and that runs administrative software for handling requests for those stored hypertext documents.
25 A hypertext document normally includes a number of hyperlinks, i.e., highlighted portions of text which link the document to another hypertext document possibly stored at a web site elsewhere on the Internet. Each hyperlink is associated with a Uniform Resource Locator (URL) that provides the exact location of the linked document on a server connected to the Internet and describes the document. Thus,
30 whenever a hypertext document is retrieved from any web server, the document is considered to be retrieved from the WWW.

A consumer is allowed to retrieve hypertext documents from the WWW, i.e., a consumer is allowed to "surf the web," via a web browser. A web browser, such as Netscape's Navigator or Microsoft's Internet Explorer, is a software program
35 implemented by a web client, i.e., the consumer's computer, to provide a graphical

user interface to the WWW. Upon request from the consumer via the web browser, the web client accesses and retrieves the desired hypertext document from the appropriate web server using the URL for the document and a protocol known as HyperText Transfer Protocol (HTTP). HTTP is a higher-level protocol than TCP/IP and is designed specifically for the requirements of the WWW. It is used on top of TCP/IP to transfer hypertext documents between servers and clients.

At the advent of the WWW, the information stored on the Internet was freely transferred back and forth between those parties interested in the information. However, the WWW is quickly becoming a channel of commerce whereby a vast number and array of companies have developed their own web sites for advertising and selling their goods and services. Consumers may "visit the web site" of a company, i.e., retrieve the hypertext documents located on the web server of a particular company, and order any good or service the company has to offer. If that good or service is in the form of electronically stored information, such as a book, a video, a music CD, a computer game, etc., the consumer may simply download the good or service from the company's web site to his or her computer for immediate consumption and use. If the good or service is of a more tangible nature, such as an appliance or article of clothing ordered from an on-line catalog, a more conventional method of delivery, e.g., the postal service, is used. The traditional method of payment for such goods and services has been by major credit card, wherein the consumer is required to transmit his or her credit information over the Internet to the company's web site. However, many question the security and confidentiality of such electronic transmissions. Furthermore, many consumers do not have a major credit card with which to make such purchases. Alternative billing systems, such as providing credit information by facsimile or postal service, are much less convenient and often prove enough of a barrier to prohibit the sale altogether. Finally, the traditional methods of billing and payment do not adequately protect the seller or consumer from fraudulent purchases.

Accordingly, a more effective method and apparatus for ordering and billing for goods and services over a network, and ultimately the Internet, is needed. The method and apparatus should provide for automatic billing to the consumer without the need of a credit card or transferring any sensitive credit information via the Internet. In addition, the consumer should be allowed to use the purchased good or service, if downloaded, only after billing is completed. Finally, the method and

apparatus should prevent consumers with histories of nonpayment from purchasing additional goods and/or services.

Summary of the Invention

The present invention provides a computer program for ordering products from computers connected to the Internet, wherein the consumer is automatically billed for the ordered good or service by its telephone service provider. The billing system comprises a plug-in component and a billing server component. When a consumer orders a product over the Internet, the plug-in component establishes an Internet connection to a billing server located elsewhere on the Internet. In response, the billing server component transfers a transaction I.D. identifying the order to the plug-in component. The plug-in component then disconnects from the Internet and establishes a point-to-point (PPP) connection with the billing server. Once the PPP connection is established, the plug in component transfers the transaction I.D. back to the billing server component. The billing server component then transfers the access key assigned to the order identified by the transaction I.D. to the plug-in component. The consumer uses the access key to claim the ordered product. The consumer is charged for the product automatically by the telephone service provider when the PPP connection is established using a telephone number assigned and administered by the telephone service provider.

In accordance with yet other aspects of the present invention, the billing server component also transfers an encrypted version of the ordered product to the plug-in component before the plug-in components disconnects from the Internet. The plug-in component then uses the access key to decrypt the encrypted version of the product.

A method and an apparatus capable of performing actions generally consistent with the plug-in component and billing server component described above represent further aspects of the present invention.

Brief Description of the Drawings

The foregoing aspects and many of the attendant advantages of this invention will become more readily appreciated as the same becomes better understood by reference to the following detailed description, when taken in conjunction with the accompanying drawings, wherein:

FIGURE 1 (Prior Art) is a block diagram of a representative portion of the Internet;

FIGURE 2 is a pictorial diagram of a local area network (LAN) connected to the Internet which supplies goods and services ordered by a consumer using a computer located elsewhere on the Internet in accordance with the present invention;

FIGURE 3 is a block diagram of the several components of the consumer's computer shown in FIGURE 2 that is used to order goods and services from the Internet in accordance with the present invention;

FIGURE 4 is a block diagram of the several components of a billing server shown in FIGURE 2 that is used to supply the ordered good and/or service and confirm the order of the good and/or service in accordance with the present invention;

FIGURES 5A and 5B are windows produced by a web browser installed on the consumer's computer from which the consumer orders a good and/or service;

FIGURE 6 is a flow chart illustrating the logic used by the consumer's computer to initiate an order of a good and/or service from the Internet;

FIGURES 7A-7C are a flow chart illustrating the logic used by the consumer's computer to complete the order of a good and/or service over the Internet;

FIGURES 8A-8F are various windows produced by the consumer's computer for displaying messages associated with the order of a good and/or service;

FIGURE 9 is a flow chart illustrating the logic used by the billing server connected to the LAN shown in FIGURE 2 to supply the ordered good and/or service to the consumer's computer;

FIGURE 10 is a flow chart illustrating the logic used by the billing server connected to the LAN shown in FIGURE 2 to confirm the order of the good and/or service;

FIGURE 11 is a flow chart illustrating the actions taken by a telephone service provider to automatically bill the consumer for the ordered good and/or service; and

FIGURE 12 is a diagram illustrating the actions taken in parallel by the consumer's computer and the billing server to order and supply the good and/or service.

Detailed Description of the Preferred Embodiment

As previously described and shown in FIGURE 1, the Internet 20 is a collection of local area networks and (LANs) 24, wide area networks (WANs) 26, remote computers 28 and routers 22 that use the Transmission Control Protocol/Internet Protocol (TCP/IP) to communicate with each other. The World

Wide Web (WWW), on the other hand, is vast collection of interconnected, electronically stored information located on servers connected throughout the Internet 20. Many companies are now selling goods and services over the Internet using the WWW. In accordance with the present invention, a consumer orders goods and/or services (referred to interchangeably herein as "products") over the Internet 20 via a web browser and is automatically billed for the purchase on his or her monthly telephone bill. More specifically, the consumer places an order from a computer 42 connected to the Internet 20. The order is then supplied and confirmed by a billing server 34 connected to a LAN 24 located elsewhere in the Internet 20.

The LAN 24 to which the billing server 34 is connected and to which the consumer's computer 42 has established an Internet connection for ordering a product is shown in more detail in FIGURE 2. In addition to the billing server 34, the LAN 24 includes an administrative computer 32 used to administer product, vendor, and purchaser information and services provided by the billing server 34. The LAN 24 also includes an access server 38 equipped with a plurality of high-speed digital modems used to accept temporary telephone links from other computers located in the Internet 20, such as the consumer's computer 42. Finally, LAN 24 includes a personal computer 36 installed with a computer supported telephony application (CSTA), which is a standard protocol used to interface the computer 36 with a telephone switch 40.

As will be described in more detail below, after the consumer places an order using the computer 42 via the Internet 20, the consumer's computer disconnects from the Internet 20 and establishes a point-to-point (PPP) connection with the billing server 34 to confirm the purchase. More specifically, the consumer's computer places a telephone call to a number assigned to the telephone switch 40. The telephone switch routes the telephone call to the access server 38, whose modems answer the telephone call and notify the billing server 34 that a TCP/IP connection to the consumer's computer 42 has been established. Meanwhile, the CSTA monitor 36 which monitors the telephone switch 40 also notifies the billing server 34 that the telephone call has been made, thus completing the PPP connection between the billing server 34 and the consumer's computer 42.

In the actual embodiment of the present invention shown in FIGURE 2, the LAN 24 is insulated from the Internet 20 by a firewall server 30 which tracks and controls the flow of all data passing through it using the TCP/IP protocol. The firewall 30 protects the LAN 24 from malicious in-bound data traffic. The LAN 24

is a bus network interconnecting the various computers and servers. The LAN 24 shown in FIGURE 2 can be formed of various coupling media such as glass or plastic fiberoptic cables, coaxial cables, twisted wire pair cables, ribbon cables, etc. In addition, one of ordinary skill in the art will appreciate that the coupling medium can also include a radio frequency coupling media or other intangible coupling media. Any computer system or number of computer systems, including but not limited to workstations, personal computers, laptop computers, servers, remote computers, etc., that is equipped with the necessary interface hardware may be connected temporarily or permanently to the LAN 24, and thus, the Internet 20. However, if temporarily connected via a telephone link to another device connected to the LAN 24, the interface hardware of both the remote computer 28 and the device to which it is connected must contain a modem. Finally, those of ordinary skill in the art will recognize that while only one consumer computer 42 and only one billing server 34 are depicted in FIGURE 2, numerous consumer computers and billing servers equipped with the hardware and software components described below may be connected to the Internet 20.

Relevant Consumer Computer and Billing Server Components

FIGURE 3 depicts several of the key components of the consumer's computer 42. Those of ordinary skill in the art will appreciate that the consumer's computer 42 includes many more components than those shown in FIGURE 3. However, it is not necessary that all of these generally conventional components be shown in order to disclose an illustrative embodiment for practicing the present invention. As shown in FIGURE 3, the consumer's computer includes a network interface 44 for connecting to a LAN 24 or WAN 26, or for connecting remotely to a LAN or WAN. Those of ordinary skill in the art will appreciate that the network interface 44 includes the necessary circuitry for such a connection, and is also constructed for use with the TCP/IP protocol, the particular network configuration of the LAN or WAN it is connecting to, and a particular type of coupling medium.

The consumer's computer 42 also includes a processing unit 46, a display 48, a modem 49 and a memory 50. The memory 50 generally comprises a random access memory (RAM), a read-only memory (ROM) and permanent mass storage device, such as a disk drive. The memory 50 stores the program code and data necessary for ordering a product over the Internet 20 in accordance with the present invention. More specifically, the memory 50 stores a plug-in component 52 formed in accordance with the present invention for ordering products. The memory 50 also

includes a web browser 51, such as Netscape's Navigator or Microsoft's Internet Explorer.

As will be described in more detail below, the products ordered by the consumer are supplied by a remote server, i.e., the billing server 34 located elsewhere on the Internet, e.g., in LAN 24 illustrated in FIGURE 2. FIGURE 4 depicts several of the key components of the billing server 34. Those of ordinary skill in the art will appreciate that the billing server 34 includes many more components than those shown in FIGURE 4. However, it is not necessary that all of these generally conventional components be shown in order to disclose an illustrative embodiment for practicing the present invention. As shown in FIGURE 4, the billing server 34 is connected to the LAN 24 via a network interface 54. Those of ordinary skill in the art will appreciate that the network interface 54 includes the necessary circuitry for connecting the billing server 34 to the LAN 24 and the firewall 30, and is constructed for use with the TCP/IP protocol, the bus network configuration of the LAN 24, and the particular type of coupling medium.

The billing server 34 also includes a processing unit 56, a display 58, and a mass memory 60. The mass memory 60 generally comprises a random access memory (RAM), read-only memory (ROM), and a permanent mass storage device, such as a hard disk drive, tape drive, optical drive, floppy disk drive, or combination thereof. The mass memory 60 stores the program code and data necessary for supplying products to consumers in accordance with the present invention. More specifically, the mass memory 60 stores a billing server component 62 formed in accordance with the present invention for supplying the ordered products and confirming the order of products. In addition, mass memory 60 stores a database 64 of product information continuously logged by the billing server 34 regarding vendors, consumers and products. It will be appreciated by those of ordinary skill in the art that the database 64 of product and logged information may also be stored on other servers or storage devices connected to the LAN 24. Finally, mass memory 60 stores web server software 66 for handling requests for stored information received via the Internet 20 and the WWW.

Ordering Goods and Services

Consumer computers, such as computer 42, are normally provided with a web browser 51 such as Netscape's Navigator to provide the consumers with a graphical consumer interface to the Internet and the WWW. FIGURE 5A illustrates the consumer's computer 42 that implements such a web browser 51. The consumer's

computer comprises a display or monitor 72, a keyboard 74, a mouse 76, and a main unit 78 that includes the components discussed above in connection with FIGURE 3. Monitor 72 includes a screen 73 on which elements of the web browser 51 are displayed. Such elements include a main window 80 for displaying hypertext documents requested by the consumer and a graphics cursor 82.

In accordance with the present invention, a consumer may visit a company's web site using the web browser 51 and retrieve a hypertext document from which the consumer may order products. For example, a consumer using computer 42 and web browser 51 may retrieve the hypertext document shown in the main window 80 of FIGURE 5A from a book store web site known hypothetically as "Albert's Book Emporium." The consumer makes a selection of a particular product by manipulating the graphics cursor 82 with the mouse 76 above the selection and "single-clicking." In response, an ordering window 70 is displayed on the screen 73 of the client's computer 42 as shown in FIGURE 5B. The ordering window 70 displays to the consumer yet another hypertext document which includes various payment options, i.e., major credit cards with electronic transmission of credit information or facsimile transmission of credit information. However, in accordance with the present invention, an automatic billing icon 68 is also displayed as a payment option. As will be described in more detail below, if the consumer selects the automatic billing icon 68, the consumer will be billed automatically for the ordered product on his or her next monthly telephone bill.

FIGURE 6 illustrates the logic implemented by the web browser 51 installed on the client's computer 42 when the automatic billing icon 68 is selected. The logic begins in a block 100 and proceeds to a block 102 where the web browser 51 determines if the plug-in component 52 of the present invention has been installed on the client's computer 42. If not, the client's computer downloads the plug-in 52 from the billing server 34 via the Internet 20 and installs the plug-in 52 in memory 50 in a block 104. If the plug-in 52 is already installed on the client's computer 42 or if it was not installed, but then loaded, the logic proceeds to a block 106 where the plug-in component 52 is initialized by the client's computer 42. The logic then ends in a block 108. Those of ordinary skill in the art will appreciate that the plug-in 52 of the present invention is downloaded, installed and initialized on the client's computer using methods well-known in the computer network arts.

Once the plug-in 52 is initialized, the plug-in 52 performs the logic depicted in FIGURES 7A-7C to place the consumer's order with the billing server 34. The

logic begins in FIGURE 7A in a block 120 and proceeds to a block 122 in which the client's computer 42 establishes an Internet connection to the billing server 34. Next, in a block 124, the plug-in 52 displays a purchase confirmation window 84 as shown in FIGURE 8A on the screen 73 of the client's computer 42. The confirmation window 84 confirms the consumer's purchase and provides the consumer with the opportunity to cancel the purchase. If the consumer enters "OK" the logic will continue to a block 126 where the plug-in transfers to the billing server 34 via the Internet 20 a product I.D. uniquely identifying the product ordered to the billing server 34 and a purchaser I.D. assigned to the consumer. As will be described in more detail below, the consumer is assigned a purchaser I.D. the first time it places an order with the billing server 34. Hence, if this is the first time that the consumer has placed an order, the consumer will not have been assigned a purchaser I.D. and no such I.D. will be transferred in block 126.

After transferring the purchaser I.D. and product I.D. to the billing server 34, the plug-in 52 waits for the billing server 34 to transfer to the consumer's computer 42 a transaction I.D. which identifies the consumer, the product ordered by the consumer (by product I.D.), and the billing server 34 supplying the order (as noted above, there may be more than one billing server located elsewhere on the Internet 20). As will be described in more detail below, the transaction I.D. will be used later to verify the consumer's order. If the transaction I.D. has not yet been received by the consumer's computer 42, the plug-in 52 merely repeats decision block 128 (i.e., essentially waits) until the transaction I.D. is received from the billing server 34. Once received, the plug-in 52 displays a directory prompt window 86 as shown in FIGURE 8B which prompts the consumer for a network or local directory on the consumer's computer 42 in which to store the product that the consumer has purchased. After entering the directory in which the consumer wishes to save the product that it has purchased, the logic proceeds to a block 132 where the consumer's computer 42 begins receiving an encrypted version of the product transferred by the billing server 34. However, as will be discussed in more detail below, the consumer is not allowed to decrypt the product until the consumer has actually been billed for the product. In this regard, the billing server 34 also transfers, and the consumer's computer 42 also receives, a telephone number that the consumer's computer 42 uses to establish a PPP connection to the billing server 34 and obtain an access key for decrypting the product.

While the encrypted product is being downloaded via the Internet 20, the plug-in 52 displays a download transaction status window 88 as shown in FIGURE 8C on the screen 73 of the consumer's computer 42 which indicates the changing status of the download to the consumer. Next, in a decision block 136, the plug-in 52 determines if the entire encrypted product has finally been received. If not, the logic repeats blocks 134 and 136 until the encrypted product has been completely downloaded to the consumer's computer 42.

Once downloading of the encrypted product is complete, the plug-in 52 displays in a block 137, an authorization transaction window 89 as shown in FIGURE 8D. Once the consumer depresses the OK button indicating authorization of the order, the plug-in 52 disconnects the consumer's computer 42 from the Internet 20 in a block 138 in FIGURE 7B. Next, in a block 140, the plug-in 52 supplies the telephone number provided by the billing server 34 to the modem 49 of the computer 42 and the modem dials the number in order to establish a PPP connection to the billing server 34. In the actual embodiment of the present invention described herein, the telephone number provided by the billing server 34 and dialed by the modem 49 of the consumer's computer 42 is a "900 number," i.e., a ten digit number having with a 900 area code, assigned by the billing server's telephone service provider. As those of ordinary skill in the telephone switching arts will appreciate, the 900 area code has been generally reserved for commercial purposes, wherein the consumer is generally charged a flat rate, or a particular rate per minute for a telephone call, and a portion of that charge is paid by the telephone service provider to the vendor to whom the 900 number is assigned. It will be recognized, however, that other types of telephone numbers may be used and, in fact, mandated by the telephone service provider without departing from the scope of the present invention.

The telephone call placed by the modem 49 is answered by the telephone switch 40 connected to the CSTA monitor 36 of the LAN 24. The telephone switch 40 routes the telephone call to the access server 38, which notifies the billing server 34. Accordingly, the consumer's computer 42 establishes a PPP connection via the telephone switch 40 and access server 38 with the billing server 34. While this connection is being established, the plug-in 52 displays an authorization window 90 as shown in FIGURE 8E on the screen 73 of the consumer's computer 42 which indicates the changing status of the connection to the billing server 34 in a block 142.

Once the PPP connection between the consumer's computer 42 and the billing server 34 is fully established, the plug-in 52 transfers the previously assigned transaction I.D. to the billing server 34 so that the billing server 34 may verify the order in a block 144. It will be recognized that many consumers may be placing
5 orders simultaneously, and hence, many computers located elsewhere on the Internet 20 may be establishing PPP connections with the billing server 34 at any given time. Therefore, the transaction I.D. is necessary so that the billing server 34 may identify the consumer and the order placed by the consumer, and supply the
10 plug-in 52 installed on the consumer's computer 42 with the appropriate access key for decrypting the previously sent product. In other words, the transaction I.D. serves a type of claim ticket used by the consumer to claim the correct access key once billing is complete.

Next, in a block 146, the plug-in 52 begins downloading the appropriate access key for the decrypting the product. As will be described in more detail below,
15 as long as the billing server 34 receives the transaction I.D. from the plug-in 52 within a certain time period (i.e., the free period at the beginning of a 900 telephone call during which the caller can hang-up without being charged), the billing server 34 will transfer the appropriate access key for decrypting the encrypted product. Otherwise, the PPP connection between the consumer's computer 42 and the billing
20 server 34 is terminated and the consumer is not billed for the telephone call or the product.

While waiting for the access key, the plug-in 52 displays another authorization window 90 in a block 148 which notifies the consumer of the status of the download of the access key. In a decision block 150, the logic determines if the
25 consumer's computer 42 has finally received the access key. If not, blocks 148 and 150 are merely repeated until the access key is received. Once received, the plug-in 52 ends the telephone call, and hence, terminates its PPP connection with the billing server 34 in a block 152.

After terminating the PPP connection with the billing server 34, the plug-
30 in 52 begins decryption of the encrypted product using the access key in a block 154. In a block 156, the plug-in 52 displays another authorization window 90 notifying the consumer that decryption of the product is in progress in a block 156. Accordingly, in a decision block 158 the plug-in determines if the product has been fully decrypted. If not, blocks 156 and 158 are merely repeated until the product has been
35 fully decrypted. Once fully decrypted, the logic proceeds to a block 160 shown in

FIGURE 7C where the plug-in 52 deletes the encrypted product from memory 50 of the client's computer in an effort to save space. Next, in a block 162, the plug-in 52 depicts a transaction completed window 91 on the screen 73 of the consumer's computer 42 as shown in FIGURE 8F. The consumer is then provided the option in the transaction completed window 91 to reconnect to the Internet via its normal Internet service provider. The logic for the plug-in 52 then ends in a block 164.

Now that the logic implemented by the plug-in component 52 has been discussed, it is necessary to describe the billing server component 62 implemented by the billing server 34 to supply the encrypted product and access key to the consumer's computer 42. As shown in FIGURE 9, the logic implemented by the billing server component 62 to supply the encrypted product begins in a block 170 and proceeds to a decision block 172 where it determines whether the connection between the consumer's computer 42 and the billing server 34 has been established via the Internet 20. If not, decision block 172 is merely repeated until such a connection has been established. Next, in a decision block 173, the billing server component determines if the product I.D. has been received from the consumer's computer 42. If not, decision block 173 is repeated until the product I.D. has been received.

Once the product I.D. has been received, the billing server component 62 determines if the consumer is new in a decision block 174, i.e., if this is the first time this consumer has placed an order. If this is the first time the consumer has placed an order, then the plug-in 52 will be unable to provide the billing server 34 with a purchaser I.D. for the consumer. Accordingly, the billing server component 62 assigns the consumer a purchaser I.D. in a block 176 and transfers the purchaser I.D. to the consumer's computer 42 in a block 178. As noted above, the plug-in 52 will return this purchaser I.D. each subsequent time the consumer places an order. The purchaser I.D. is logged in the product and information database 64 of the billing server and is used for accounting and recordkeeping purposes, such as payment histories, customer demographics, etc.

If the consumer is not a first-time buyer or, is a first-time buyer and thus, has been assigned a purchaser I.D., the logic proceeds to a decision block 180 where the billing server component 62 determines whether an order by this particular consumer should be denied. More specifically, the billing server 34 determines whether the purchaser I.D. is blocked. It will be appreciated that over the course of time, certain consumers may fail to pay their telephone bills, which include the charges for the

orders placed using the present invention. A log of such purchaser I.D.s will be maintained in the database of product and logged information 64 in mass memory 60 of the billing server 34. If the purchaser I.D. of the consumer placing the order matches one of the logged purchaser I.D.s, the consumer will be prevented from placing its order and notified appropriately in a block 182. Such notification may include a message displayed on the screen 73 of the consumer's computer 42 followed by termination of the PPP connection between the billing server 34 and the consumer's computer 42 in a block 183. The logic then ends in a block 184. On the other hand, if the consumer is not blocked by purchaser I.D. in decision block 180, the logic proceeds to a block 186 where the billing server 34 assigns a transaction I.D. to the order and transfers the transaction I.D. to the consumer's computer 42. The transaction I.D. identifies the consumer, the product ordered (by product I.D.) and the billing server 34. As noted above, the plug-in 52 installed on the consumer's computer 42 waits for this transaction I.D. before prompting the consumer for a directory in which to store the product it has ordered.

After transferring the transaction I.D. to the consumer's computer 42, the billing server component 62 locates the product ordered by the consumer and encrypts it in a block 188. It will be appreciated by those of ordinary skill in the art that the product may be stored in the database 64 of product information located in mass memory 60 of the billing server 34 or it may be located on a server located elsewhere in the Internet. If the product is located elsewhere, the billing server 34 will establish an Internet connection with the corresponding server and download the ordered product. It will also be appreciated that the product, whether located in mass memory 60 of the billing server 34 or elsewhere on the Internet, may be pre-encrypted. Therefore, it may not be necessary for the billing server component 62 to encrypt the product itself.

Next, in a block 190, the billing server component 62 stores the encrypted product in a working directory in mass memory 60 of the billing server 34 as a precursor to transferring it to the client's computer 42. In a block 192, the billing server component 62 selects an access key, i.e., password, for decrypting the encrypted product stored in the working directory. It will be appreciated that the billing server component 62 may select the access key from a predefined list stored in the database 64 of product and logged information, or the billing server component 62 may generate an access key at random or using various other selection algorithms. Once the access key has been selected by the billing server

component 62, the billing server 34 transfers the encrypted product to the consumer's computer 42 as well as the telephone number that the plug-in 52 will use to establish a PPP connection with the billing server 34 so that billing can be performed and the access key may be provided to the plug-in 52. The logic then ends in a block 196.

5 The logic employed by the billing server component 62 to confirm completion of billing for a placed order, and thus, supply the plug-in 52 with the access key is depicted in FIGURE 10. The logic begins in FIGURE 10 in a block 200 and proceeds to a decision block 202 where the billing server component 62 determines if a PPP connection has been established to the billing
10 server 34 by any consumer computer 42 installed with a plug-in 52. As noted above, many consumers may be placing orders at any given time, and hence, many computers may be attempting to establish a PPP connection to the billing server 34 so that they may obtain the appropriate access key for decrypting their ordered product. Hence, decision block 202 is repeated until such a connection has been
15 established.

 Once a PPP connection has been established, the logic proceeds to a decision block 204 where the billing server component 62 determines whether or not the order placed by the consumer should be denied by determining whether the purchaser I.D. assigned to the consumer and transferred to the billing server 34 by the plug-in 52 is
20 blocked. If so, the consumer is appropriately notified, e.g., by a message displayed on the screen 73 of the consumer's computer 42, in a block 206. Accordingly, the billing server component 62 ends the telephone call and terminates the PPP connection with the consumer's computer 42. It will be appreciated from the discussion below, if the telephone call is ended at this time, i.e., before the expiration
25 of the free period, the consumer will not be billed for the order placed. The logic then ends in a block 210.

 If the order is not denied based on purchaser I.D., the logic proceeds to a decision block 212 where it determines if the order should be denied based on the consumer's telephone number (i.e., the telephone number from which the modem 49
30 of the consumer's computer is making the telephone call to the billing server 34) in a decision block 212. In one actual embodiment of the present invention, a list of telephone numbers is maintained by the CSTA monitor 36 of all consumers who have not paid their monthly telephone bills for ordered products or who have indicated that all purchases attempted from their telephone number should be denied.
35 If the order is to be denied based on the consumer's telephone number, the CSTA

monitor 36 automatically provides a busy signal to the modem 49 of the consumer's computer 42 in a block 206. Next, in a block 208, the telephone call made by the modem 49 of the consumer's computer, and hence the PPP connection to the billing server 34 is terminated. The logic then ends in a block 210.

5 Returning to decision block 212, if the order is permitted, the logic proceeds to a decision block 214 in which the billing server component 62 determines if it has received the transaction I.D. from the plug-in 52. If not, the logic proceeds to another decision block 216 in which the billing server component 62 determines if the free period has almost expired. As noted above and described in more detail below, this
10 free period is the time interval at the beginning of a 900 telephone call during which the consumer can hang up and not be charged for the telephone service by the telephone service provider. By default, the free period is normally 18.9 seconds. However, the free period is dictated by the telephone service provider, and hence, may vary accordingly. During the free period, the plug-in 52 may display a message,
15 which informs the consumer that they may hang up and not be charged for the telephone call or the product. If the transaction I.D. is not received from the plug-in 52 during the free period, the billing server component 62 will automatically terminate the telephone call in a block 208, so that the consumer is not erroneously charged for the telephone call. Consequently, the logic ends in a block 210.

20 If the transaction I.D. is received, with time to spare, the logic proceeds from decision block 214 to a decision block 217 where the billing server component 62 determines if the free period has expired. In other words, once the billing server 34 has received the transaction I.D. from the plug-in 52, the billing server component 62 merely waits for the free period to expire. Once expired, the telephone service
25 provider bills the consumer for the ordered product as will be discussed in more detail below and the billing server component 62 transfers the access key assigned to the order identified by the transaction I.D. to the consumer's computer 42 so that the plug-in 52 can decrypt the product previously provided by the billing server component 62. The logic then ends in a block 219.

30 Now that the plug-in and billing server components of the present invention have been described, the actions provided by the telephone service provider in order to automatically bill the consumer for the ordered product are discussed in more detail in connection with FIGURE 11. The flow diagram begins in a block 220 and proceeds to a block 222 where the telephone service provider routes the telephone
35 call made by the modem 49 of the consumer's computer 42 to the telephone

switch 40 connected to the CSTA monitor 36 of the LAN 24. Once the telephone switch 40 answers the call, the telephone service provider waits for the free period described above to expire in a block 224 before it bills the consumer for the order in a block 226. In the meantime, either the consumer's computer 42 or the billing server 34 may terminate the telephone call and prevent billing for the order. Once the free period has expired, however, the telephone service provider bills the consumer for the ordered product using its own internal accounting and billing procedures. Consequently, the charge for the product and the telephone call will appear on the consumer's next monthly telephone bill for the telephone number from which the modem 49 of the consumer's computer 42 made the telephone call to the billing server 34. In a block 228, the telephone service provider collects payment for the telephone call and the ordered product from the consumer via its normal collection processes. Once the telephone service provider has collected payment for the call, the telephone service provider pays a service charge to the provider of the billing server 34 in a block 230. This service charge can be a flat rate or can be a percentage of each order placed.

FIGURE 12 is an overall diagram depicting the actions of the plug-in 52/consumer's computer 42 and the billing server component 62/billing server 34 in parallel. Consequently, FIGURE 12 depicts the consumer's computer 42 establishing an Internet connection to the billing server 34. The consumer's computer 42 then transfers the product I.D. of the ordered product to the billing server 34. In response, the billing server 34 transfers a transaction I.D. for the order to the consumer's computer 42. The billing server 34 also transfers the encrypted product and a telephone number for establishing a PPP connection to the billing server 34 to the consumer's computer 42. Once the consumer's computer 42 has received the transaction I.D. and the encrypted product, the consumer's computer 42 disconnects from the Internet 20 and dials the telephone number transferred by the billing server 34 in order to obtain the access key for decrypting the product. Once the PPP connection with the billing server 34 is established, the consumer's computer 42 transfers the transaction I.D. back to the billing server 34 so that the billing server component 64 may identify the order and match the transaction I.D. to the access key assigned to that transaction. Accordingly, the billing server transfers the appropriate access key to the consumer's computer so that the plug-in 52 may decrypt the product. It is readily apparent from FIGURE 12 that the plug-in 52 is only able to decrypt the ordered product and thus, the consumer is only able to use

the product, once the access key has been provided, which necessarily requires that the consumer's computer make a telephone call that is billed by the telephone service provider to the consumer's telephone service account.

5 While the preferred embodiment of the present invention has been illustrated
and described, it will be appreciated that various changes can be made therein
without departing from the spirit and scope of the invention. For example, the billing
system of the present invention may be used to order products that are not
electronically stored and delivered. Rather, the products are delivered by some other
method, e.g., postal service, express package service, etc. In such cases, instead of
10 providing the plug-in 52 with an encrypted product and an access key for decrypting
the encrypted product, the consumer is provided with an access key or claim number
that must be presented upon delivery of the product so that the consumer may claim
the product. The billing system of the present invention may also be used to order
products that may be used by the consumer only for a predetermined time period.
15 For example, the consumer may purchase an hour of computer game time. In such
cases, the consumer is not allowed to begin play of the game until provided an access
key, which is then returned to the computer game provider.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A method for ordering a product over an internetwork of computer systems, wherein the product is ordered from a computer connected to the internetwork and supplied by a server connected to the internetwork, the method comprising:

(a) establishing a connection between the computer and the server via the internetwork of computer systems;

(b) transferring a transaction identification from the server to the computer, wherein the transaction identification identifies the product ordered and the computer ordering the product;

(c) terminating the connection between the computer and the server via the internetwork of computer systems;

(d) establishing a direct connection between the computer and the server;

(e) transferring the transaction identification from the computer to the server to identify the product ordered and the computer ordering the product; and

(f) transferring an access key assigned to the product ordered and the computer ordering the product from the server to the computer that is used to claim the product ordered by the computer.

2. The method of Claim 1, further comprising:

(a) while the computer is connected to the server via the internetwork of computer systems, transferring an encrypted version of the product from the computer to the server; and

(b) after transferring the access key from the server to the computer, claiming the product ordered by the computer by decrypting the encrypted version of the product using the access key.

3. The method of Claim 1, wherein the direct connection between the computer and the server is established via a telephone link administered by a telephone service provider so that when the direct connection between the computer and the server is established, the telephone service provider automatically charges for the telephone link and the product ordered.

4. The method of Claim 3, wherein the telephone link is associated with a 900 telephone number.

5. The method of Claim 1, wherein the connection between the computer and the server via the internetwork of computer systems is terminated before the transaction identification is transferred, if the order of the product is denied.

6. The method of Claim 1, wherein the access key is generated at random.

7. The method of Claim 1, wherein the access key is selected from a list of predetermined access keys.

8. The method of Claim 1, wherein the direct connection between the computer and the server is terminated before the access key is transferred if the order of the product is denied.

9. The method of Claim 3, wherein the direct connection between the computer and the server is terminated before the access key is transferred if the transaction identification is not transferred from the computer to the server within a predetermined time interval.

10. An apparatus for ordering a product from a plurality of computers and servers connected to form an internetwork, the apparatus comprising:

(a) a consumer's computer comprising a processing unit and a storage medium, the storage medium containing program code executed by the processing unit for placing an order for the product; and

(b) a billing server comprising a processing unit and a storage medium, the storage medium containing program code executed by the processing unit for responding to the order for the product placed by the consumer's computer.

11. The apparatus of Claim 10, wherein the program code executed by the processing unit of the consumer's computer places an order for the product by:

(a) establishing a connection to the billing server via an internetwork communication link; and

(b) transferring the order to the billing server via the internetwork communication link.

12. The apparatus of Claim 11, wherein the program code executed by the processing unit of the billing server responds to the order for the product placed by the consumer's computer by transferring a transaction identification to the consumer's computer via the internetwork communication link, which identifies the order placed by the consumer's computer.

13. The apparatus of Claim 12, wherein the program code executed by the processing unit of the consumer's computer further places the order by:

(a) terminating the connection to the billing server via the internetwork communication link after the transaction identification has been received from the billing server;

(b) establishing a connection to the billing server via a telephone link; and

(c) transferring the transaction identification back to the billing server via the telephone link.

14. The apparatus of Claim 13, wherein the program code executed by the processing unit of the billing server further responds to the order placed by the consumer's computer by transferring an access key assigned to the order placed by the consumer's computer after the billing server receives the transaction identification identifying the order placed from the consumer's computer.

15. The apparatus of Claim 14, wherein the program code executed by the processing unit of the billing server further responds to the order for the product placed by the consumer's computer by transferring an encrypted version of the product to the consumer's computer via the internetwork communication link before the consumer's computer terminates the connection to the billing server via the internetwork communication link.

16. The apparatus of Claim 15, wherein the program code executed by the processing unit of the consumer's computer further places the order by decrypting the encrypted version of the product using the access key transferred to the consumer's computer by the billing server via the telephone link.

17. The apparatus of Claim 13, wherein the consumer is automatically billed for the order placed by the consumer's computer by the telephone service provider of the telephone link.

18. The apparatus of Claim 17, wherein the consumer's computer dials a 900 telephone number to establish the telephone link.

19. The apparatus of Claim 12, wherein the program code executed by the processing unit of the billing server further responds to the order placed by the consumer's computer by terminating the connection between the computer and the server via the internetwork communication link before the transaction identification is transferred to the consumer's computer if orders placed by the consumer are to be denied.

20. The apparatus of Claim 14, wherein the program code executed by the processing unit of the billing server further responds to the order placed by the consumer's computer by terminating the connection between the consumer's computer and the billing server via the telephone link before the access key is transferred to the consumer's computer if orders placed by the consumer are to be denied.

21. A computer-readable medium having a computer-executable component for ordering a product from a plurality of computers and servers connected to form an internetwork, the computer-executable component comprising a plug-in component for ordering a product from the plurality of computers and servers connected to form the internetwork, wherein the plug-in component places an order for the product by:

- (a) establishing an internetwork communication link with a server connected to the internetwork which provides the product ordered;
- (b) obtaining a transaction identification which identifies the order from said server;
- (c) disconnecting the internetwork communication link with said server;
- (d) establishing a telephone communication link with said server;
- (e) transferring the transaction identification to said server to identify the order placed; and
- (f) obtaining an access key assigned to the order identified by the transaction identification which is used to claim the ordered product.

22. The computer-readable medium of Claim 21 having a further computer-executable component comprising a billing component for verifying the order placed by the plug-in component, wherein the billing component verifies the order placed by:

(a) providing the transaction identification to the plug-in component once the internetwork communication link with said server connected to the internetwork is established by the plug-in component; and

(b) providing the access key to the plug-in component once the telephone communication link with said server is established by the plug-in component.

23. The computer-readable medium of Claim 22, wherein the billing component also provides the plug-in component with an encrypted version of the product ordered before the plug-in component disconnects the internetwork communication link with said server.

24. The computer-readable medium of Claim 23, wherein the plug-in component decrypts the encrypted version of the product ordered with the access key provided by the billing component.

25. The computer-readable medium of Claim 21, wherein the telephone communication link is associated with a 900 telephone number.

26. The computer-readable medium of Claim 21, wherein the telephone communication link established by the plug-in component is administered by a telephone service provider which bills for the product ordered via the telephone communication link.

27. A computer-readable medium having a computer-executable component for fulfilling an order for a product placed by a computer connected to an internetwork of computers and servers, the computer-executable component comprising a billing component which fulfills the order by:

(a) providing said computer a transaction identification assigned to the order after an internetwork connection with said computer is established; and

(b) providing said computer an access key assigned to the order identified by the transaction identification after a point-to-point connection with said computer is established and after said computer returns the transaction identification.

28. The computer-readable medium of Claim 27 having a further computer-executable component comprising a plug-in component for placing the order for the product, wherein the plug-in component places the order for the product by:

- (a) establishing the internetwork connection with said computer;
- (b) receiving the transaction identification provided by the billing component;
- (c) disconnecting the internetwork connection with said computer;
- (d) establishing the point-to-point connection with said computer;
- (e) returning the transaction identification to the billing component; and
- (f) receiving the access key assigned to the order identified by the transaction identification which is used to claim the ordered product.

29. The computer-readable medium of Claim 28, wherein the billing component also provides said computer with an encrypted version of the product ordered before the plug-in component disconnects the internetwork connection with said computer.

30. The computer-readable medium of Claim 29, wherein the plug-in component decrypts the encrypted version of the product with the access key provided said computer by the billing component.

31. The computer-readable medium of Claim 27, wherein the telephone communication link is associated with a 900 telephone number.

32. The computer-readable medium of Claim 27, wherein the telephone communication link established by the plug-in component is administered by a telephone service provider which bills for the product ordered via the telephone communication link.

**METHOD AND APPARATUS FOR ORDERING GOODS AND SERVICES
OVER AN INTERNETWORK**

Abstract of the Disclosure

5 A billing system is provided that allows a consumer to order products from
computers connected to the Internet, wherein the consumer is automatically billed for
the ordered good or service by its telephone service provider. The billing system
comprises a plug-in component (52) and a billing server component (62). When a
consumer orders a product over the Internet (20), the plug-in component (52)
10 establishes an Internet connection to a billing server (34) located elsewhere on the
Internet (20) to order the product. In response, the billing server component (62) of
the billing server (34) transfers a transaction I.D. identifying the order to the plug-in
component (52), as well as an encrypted version of the product to the plug-in
component (52). The plug-in component (52) then disconnects from the Internet (20)
15 and establishes a point-to-point (PPP) connection with the billing server (34). Once
the PPP connection is established, the plug in component (52) transfers the
transaction I.D. back to the billing server component (62). The billing server
component (64) then transfers the access key assigned to the order identified by the
transaction I.D. to the plug-in component (52) so that the plug-in component (52)
20 may decrypt the product. The consumer is charged for the product automatically by
the telephone service provider when the PPP connection is established using a
telephone number assigned and administered by the telephone service provider.